UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,836	02/25/2005	Steffen Scholze	DE02 0196 US	9613

65913   7590   10/09/2007
NXP, B.V.
NXP INTELLECTUAL PROPERTY DEPARTMENT
M/S41-SJ
1109 MCKAY DRIVE
SAN JOSE, CA 95131

EXAMINER
RADKIEWICZ, JARED

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
10/09/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>25 February 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☒ All　b)☐ Some * c)☐ None of:

　　　1.☒ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date *2/25/2005*.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Amendments

This office action is responsive to the preliminary claim and specification

amendment received on 2/25/2005. **Claims 1 - 8** remain pending

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   **Claims 1, 3, 4, 5, 7, and 8** are rejected under 35 U.S.C. 102(b) as being

anticipated by Bolle et al. (US 5,963,656).

Regarding **claim 1**, Bolle teaches a method of assessing the quality of skin print

images, and particularly fingerprint images ("method for processing fingerprint images

and rejecting poor quality and/or partial fingerprint images", Column 1 Line 6-9),

characterized in that

gradients are formed for the individual picture elements (pixels) of the skin print

images ("Specifically, step 840 first computes the directional histogram, for each block,

based on the directions of pixels within it.", Column 7 Lines 46-48), in that

a mean value is formed from the gradients of the pixels in one region of the image (tile) at a time ("If there is a block direction, i.e., a prominent direction, the direction is noted", Column 7 Lines 34-36), and in that

similarities in the mean values from tile to tile form a measure of quality ("Q is therefore obtained by computing the ratio of total weights of directional blocks to the total weights for each of the blocks in the foreground", "The computed quality Q is used as a measure of how much reliable directional information is available for an acquired fingerprint image", Column 9 Line 24-31).

Regarding **claim 5**, Bolle also teaches a system for assessing fingerprint image quality ("system and method", Column 1 Line 7).

Regarding claims **3 and 7**, Bolle teaches a method as claimed in claim 1, characterized in that

the mean values are entered in two directional matrices for x and y ("the directional histogram, for each block, based on the directions of pixels within it", Column 7 Line 47), in that

scalar products are formed of the directional matrices together with the matrices that are displaced horizontally, vertically and in the directions of both diagonals by one tile ("Note that in this embodiment, three neighbor pixels are selected in each of the positive (950) and negative (960) directions along each of the 0, 45, 90, and 135 degree directions/paths", Column 6 Line 47-51), in that

each of the products that were obtained in that way by multiplying the matrices

are summed over all the tiles, and in that the sums are added together and are divided

by the sum of the scalar products of the directional matrices with themselves in order to

form the quality measure, said sum of the scalar products of the directional matrices

with themselves being summed up over all tiles ("In a preferred embodiment, since all of

the block have an equal area, the quality (i.e., the ratio of the areas above) of a

fingerprint image Q is therefore obtained by computing the ratio of total weights of

directional blocks to the total weights for each of the blocks in the foreground 1030, i.e.

Q=.SIGMA.[w.sub.i ; x.sub.i is a-directional block]/.SIGMA.[w.sub.i ; x.sub.i is a

foreground block] The computed quality Q is used as a measure of how much reliable

directional information is available for an acquired fingerprint image. If the computed Q

is less than the quality threshold, TH, the image is rejected 871", Column 9 Line 21-31).

Regarding **claims 4 and 8**, Bolle teaches a method as claimed in claims 1 and 5,

respectively, characterized in that the lengths of the average gradients are used to

determine a region of interest of the skin print that has been scanned ("One

embodiment of the invention makes these determinations by summing the intensity

differences between the pixels in the block and their neighbors along one or more

directions to classify the pixels as either foreground or background pixels. Blocks with

over a threshold number of background pixels are background blocks, the other blocks

are foreground blocks", wherein "intensity differences between the pixels in the block

and their neighbors along one or more directions" is a gradient operation and the

classification operation compares the gradient to a threshold value to decide if the pixel

is foreground or background, Column 3 Lines 39-43).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bolle et al. (US 5,963,656) in view of Jain et al. (US 6,263,091 B1).

Regarding **claims 2 and 6**, Bolle teaches claims 1 and 5, respectively.

Bolle does not teach the method as claimed in claim 1 and 5, characterized in

that the gradients formed initially, which have the components $g_x(alt)$ and

$g_y(alt)$, are squared after the fashion of a complex number by

Jain teaches using gradient components in the complex domain ("Prewitt

Operator", Jain Column 9 Lines 15-35), necessitating a transform similar to the

Pythagorean triple represented by the formulas $g_x = g_x(alt)^2 -$

$g_y(alt)^2$ and $g_y = 2g_x(alt) * g_y(alt)$.

It would have been obvious at the time of invention to one of ordinary skill in the

art to use the gradients of Bolle in a manner as suggested by Jain as a method of

"obtaining mean 180-degree invariant X and Y gradients from the raw unprocessed

gradients" (Jain Column 9 Line 65) in a process to separate regions of interest in

fingerprint images as seen in both Bolle and Jain.
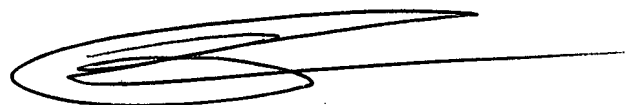
Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jared W. Radkiewicz whose telephone number is (571)

270-1577. The examiner can normally be reached on 8:00 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JWR

BRIAN WERNER
SUPERVISORY PATENT EXAMINER